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ANNUAL FOREST INSECT STATUS REPORT IDAHO AND MONTANA 1948

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This report shows the known status of forest insect conditions within the States of Idaho and Montana for the 1948 season. All available sources of information have been used to make this report as complete as possible. One of these is the Forest Ranger's Annual Report, which continues to be of value in presenting information as to the forest insect situation within the ranger districts of the National Forests. Other sources include seasonal reports from the National Park Service, Indian Reservations and private owners. These reports of abnormal forest conditions are often the first record received of what subsequently proves to be serious situations.

Bark Beetles

Mountain Pine Beetle (Dendroctonus monticolae Hopk.) - White Pine

Each year the mountain pine beetle takes a heavy annual toll from the valuable white pine forests of northern Idaho and western Montana. In many timber stands this loss is not heavy and for one or two years is of no great importance. However, over a period of years this low annual loss builds up to a startling volume. Furthermore, so called normal infestations of this beetle can change rapidly to serious outbreaks that destroy a large percentage of the total white pine volume in a few years. In fact this development would seem to be the inevitable occurrence in all mature white pine stands as they become susceptible to bark beetle attack. Such susceptibility is considered as closely related to the health or vigor of the trees. The susceptibility of a white pine stand is determined by the number of individual trees that are low in vigor and corresponding resistance.

Western white pine is an intolerent tree species which occurs as a temporary forest type. As a result the mountain pine beetle destroys not only large volumes of white pine timber, but accelerates the transition to the less valuable tree species of the climax forest. Unfortunately, white pine is a perishable forest commodity that without proper care cannot be set aside and held until wanted. Both direct and silvicultural methods to control the mountain pine beetle play an important role in such protection. However, the prevention of outbreaks and the minimizing of annual losses, through processes of timber management, is a desired objective.

In the Twelve Mile Creek drainage of the Cabinet National Forest there is an infestation of the mountain pine beetle that is considered as having serious potentials. Several small groups of infested white pine trees are an indication of more serious losses to follow. A similar condition existed in this area a few years ago. Several groups of infested trees were treated, and for a few years the infestation was reduced to a low non-destructive level. The existing groups of infested trees point to an increasing beetle population and should be treated.

On the Coeur d'Alene National Forest losses of white pine are still occurring in the following areas:

Unit	Acres	Number of Infested Trees Per Acre	Number of Infested Trees Per Unit
Sissons	4,700	.111	517
Downey Cr.	4,160	.183	762
Yellow Dog Creek	4,120	.082	337
Yellow Dog River	1,800	.545	980
North Yellow Dog	840	.021	18
Indian Creek	500	.159	80
Deception Creek	50	.500	25

The Sissons, Downey, and Yellow Dog units contain some 15,620 acres. Since 1930, control measures have been conducted on some portions of this acreage during ten different seasons. This plan of control is considered as a maintenance or holding operation, with treatment being directed against "hot spots" of infestation only. Although leaving much to be desired, it successfully prevented the occurrence of the serious epidemic outbreaks that have occurred in other similar areas where no control was conducted. The 100 million feet of pine that is still present within these units can be largely attributed to the success of the operation. Continuation of this program has been recommended for the 1949 season. An infestation in the Deception Creek area is concentrated within the Montford Creek Natural Area, although there are a few infested trees scattered throughout the drainage. Past losses in this area, that has been set aside as depicting natural conditions, have been heavy, and if further damage is to be prevented these trees should be treated or removed.

On the Kootenai National Forest a blowdown of white pine, lodgepole pine, and Engelmann spruce within the Spread Creek drainage now harbors a dangerous infestation of the mountain pine beetle and the Engelmann spruce beetle (Dendroctonus engelmanni Hopk.). As windthrown trees are favorable hosts, contributing to a rapid buildup of

destructive beetle populations, it is hoped these trees can be removed or treated. The large broods of beetles that will emerge from these windfalls in 1949 can result in the destruction of a large percentage of the residual timber volumes within the area.

In 1947 the Annual Ranger Reports from the St. Joe National Forest recorded an infestation of the mountain pine beetle in the pine stands of Quartz and Gold Creeks. This report was followed up with a fairly intensive survey during the 1948 season. Data obtained show that along the divide at the heads of these drainages there are 2,750 infested lodgepole and whitebark pine trees on an area of some 3,000 acres. However, in the lower portion of these and the Bruin Creek drainages there is only a light (.008 of a tree per acre) infestation in white pine. The commercial value of lodgepole pine and whitebark pine may not warrant the cost of control, but the threat of this situation to the more valuable white pine stands warrants further careful consideration. The potentials of this situation are fully appreciated and a careful survey will be made during the 1949 season. Other white pine areas on the St. Joe National Forest are Bluff Creek, Fishhook-Roundtop, Siwash-Sisters, Skookum-Bird Creek, and the Eagle-Quartz Creek Units. The infestation within these units will vary from .011 to .082 of a tree per acre and are not considered serious at this time. These situations are mentioned as examples of so-called normal infestation, where over a period of years a light loss will build up to a large volume, as well as change in a few years to serious epidemic outbreaks. All of these situations will be checked carefully during the coming season.

Mountain Pine Beetle - Lodgepole Pine

It is in pure stands of lodgepole pine that the mountain pine beetle reaches its highest level of destructiveness. Only a few years are required for epidemics to develop and spread over large areas, leaving forests of dead trees. With large areas to be covered and thousands upon thousands of trees to be treated, the control of such situations is an expensive and difficult procedure. To prevent the occurrence of such outbreaks, more attention must be given to an early detection and prompt control of all infestations as soon as they begin to assume epidemic proportions.

Two areas of lodgepole pine infestation on the Kootenai National Forest were brought under control during the 1948 season. On the smaller of these areas (160 acres), the 1947 infestation averaged 15.9 trees per acre. On the other unit (1,100 acres) the infestation was lighter and averaged only 1.87 trees per acre. Control measures successfully reduced these outbreaks to a level where further work in 1949 is not necessary. However, the 1948 survey disclosed a new infestation in the lodgepole pine stands of the Upper Ford District. On some 3,000 acres there is a rapidly increasing infestation that averages .57 of a tree per acre. Control measures have been recommended for this area as valuable commercial pole stands are threatened by this outbreak.

Within the lodgepole pine stands of the Targhee, Teton, Bridger, and Caribou National Forests a severe mountain pine beetle infestation threatens the destruction of large valuable areas of commercial and scenic lodgepole pine forests. This outbreak was recorded first on the Caribou National Forest in 1944. Control measures were conducted during the 1944-1945 winter, but only a part of the infested trees were treated. In 1945 an area of severe infestation was recorded on the Teton National Forest, with the situation on the Caribou becoming more widespread. By the fall of 1946 infestation was found throughout the southern portion of the Targhee National Forest and the Teton situation had increased in scope and seriousness. In the spring of 1947 control measures were undertaken to prevent any further spread of this outbreak. Such an occurrence would destroy the scenic forests of the Grand Teton and Yellowstone National Parks, as well as the commercial timber values of the Targhee and Teton National Forests. Although the 1947 project was not as complete as had been hoped for, it successfully prevented any material spread of the beetles to the north. In 1948 control measures were again conducted on a much larger and more intensive scale. During this operation more than 110,000 trees, on some 83,000 acres, were treated at an approximate cost of $500,000. A survey of the treated areas showed a reduction in the severity of the infestation that varies from 50 to 98 percent, with a project average of 79 percent. Control measures have been recommended on the basis of a clean-up of this infestation.

A potentially dangerous infestation has been reported from the Ennis District of the Beaverhead National Forest. This infestation lies along the east side of the Madison River drainage and on the east slopes of the Tobacco Root Mountains. The fact that infested trees are reported as occurring in small groups, distributed over a large acreage, is considered as an indication of an increasing infestation. This situation must be followed carefully.

A light infestation of this beetle in lodgepole pine stands was reported from the Seeley Lake District of the Lolo National Forest. This situation is not considered as being dangerous.

Mountain Pine Beetle - Ponderosa Pine

Ranger reports from the Helena National Forest state that there has been some reduction in the severity of the infestation within the ponderosa pine stands of the Lincoln District. This infestation was recorded first in 1945, and at that time it was quite severe. No control measures were conducted, but in 1947 an attempt was made to salvage some of the dead and infested trees through timber sales. It is doubtful if this plan has contributed much to the reduction that has occurred in the severity of the situation. Most of the damaged timber stands are privately owned.

In 1947 an infestation of the mountain pine beetle was reported from the Mission and Roundtop areas of the Kaniksu National Forest. The 1948 report of this situation states that the infestation did

not increase in severity as was anticipated in 1947. There were some beetle attacks in trees damaged by logging equipment.

Reports from the Lewis and Clark National Forest record little change in the ponderosa pine infestations within the Judith and Musselshell Ranger Districts. This infestation was recorded in 1947 and an intensive survey showed a loss of some 5,850 trees on scattered areas involving 3,400 acres. No control measures were directed against this outbreak.

A light scattered loss of ponderosa pine resulting from attacks of the mountain pine beetle was reported from the Missoula district of the Lolo National Forest. This situation is not considered serious.

Black Hills Beetle (Dendroctonus ponderosa Hopk.) - Ponderosa Pine

An outbreak of this destructive insect was reported from the Long Pines Division of the Custer National Forest in 1947. An extensive examination, based on red tops (1946 attacks) did not reveal an alarming situation. However, in 1948 the appearance of an unusual number of red tops (1947 attacks) prompted a more detailed survey of the area. This survey, conducted in late November under adverse weather conditions, indicated the presence of 1,755 infested trees on an area of 2,656 acres. Control measures have been recommended.

Western Pine Beetle (Dendroctonus brevicomis Lec.) - Ponderosa Pine

Scattered attacks of this insect were reported by the Forest Supervisor, Bitterroot National Forest, as occurring in ponderosa pine throughout the Bitterroot River, and upper Selway areas. These attacks are widely scattered and are mostly in lightning struck trees.

For several years ponderosa pine losses have been reported from the Clearwater Ranger District of the Nezperce National Forest. The 1948 report from this District indicates no change in the status of this infestation.

A light scattered western pine beetle infestation was reported from the Palouse District of the St. Joe National Forest. This situation is not alarming.

Douglas Fir Beetle (Dendroctonus pseudotsugae Hopk.) - Douglas fir

The Douglas fir beetle takes a heavy annual toll of Douglas fir from the forests of the northern Rocky Mountains. There are infestations of this beetle, in all degrees of severity, in nearly all Douglas fir stands. Past losses of this tree species have not been viewed with much concern, as its value did not seem to warrant such consideration. However, present demands for Douglas fir seems to place the importance of such losses upon a much higher level of consideration.

The bad outbreak of this beetle at McGregor Lake, near Kalispel, Montana, that for several years destroyed large volumes of Douglas fir, decreased in severity during the past season. This infestation apparently started in logging slash and spread to uncut timber stands nearby.

In the Bitterroot National Forest a Douglas fir beetle infestation is reported as distributed throughout the Bitterroot and upper Selway drainages. Although some losses are occurring in all Douglas fir stands, the reported situation is not serious.

There are heavy losses of Douglas fir in the Big Timber District of the Gallatin National Forest. The 1948 Ranger Report states that the infestation started in trees injured by low temperatures in 1943. At the present time the insects have spread over a large acreage, on which losses of timber have been severe. In the lower Deer Creek drainage, considered as the best stand of Douglas fir in the district, at least 60 percent of the trees have been killed. This situation is considered as threatening the destruction of most mature Douglas fir stands within the Big Timber District.

Reports were received from the Lolo National Forest recording infestations of the Douglas fir beetle within the Seeley Lake and Bonita Ranger Districts. These situations are apparently so-called normal infestations, scattered over large areas and not of a serious character.

On the Helena National Forest there are infestations in the Canyon Ferry and Helena Ranger Districts. The reports of these situations indicate that they are not serious.

An infestation was again reported from the Clearwater Ranger District of the Nezperce National Forest. This situation has been reported for several years, with no change in its present status.

A report of a Douglas fir beetle infestation within the Kintla Lake area was received from the Glacier National Park. This situation was examined by an officer of this laboratory, who does not regard it as being of a serious nature.

Engelmann Spruce Beetle (Dendroctonus Engelmanni Hopk.) - Engelmann Spruce

The Engelmann spruce beetle also takes an annual toll of varying severity from all mature spruce stands within the region. This loss is seldom recognized as there are no "red topped trees" to attract attention. The foliage of beetle-attacked spruce trees falls before there is much discoloration of the needles. As a result, trees that appear to have been dead for years are, in reality, harboring broods of beetles. Epidemic outbreaks of the Engelmann spruce beetle are to be feared, for when they occur a high percentage of the larger trees are killed in a few years. Windthrown spruce trees contribute materially to the development of destructive beetle populations and their occurrence must always be considered with apprehension.

In 1947 two centers of severe spruce beetle infestation were reported from the Payette National Forest. These areas are near McCall, Idaho, where lumbering is a principle industry, and where spruce comprises a large percent of the available timber supply. Although an examination of these areas was made, the data obtained were not sufficient to base a recommendation for control. A more thorough survey was planned and conducted during the 1948 season. This survey showed that, as feared, there were at least eight areas of infestation that involved some 8,000 acres. In these areas there were more than 4,000 infested trees and windfalls to be treated. Control measures have been recommended.

Engraver Beetles (Ips oregoni Eishh.)

This engraver beetle is a potentially dangerous insect enemy of ponderosa and lodgepole pine. Although usually considered as secondary in its attack habits, large populations can develop rapidly from logging or other accumulations of favorable host material. When this occurs the beetles, for a short time, attack and kill healthy trees. Damage from this insect was reported from the Clearwater and Salmon districts of the Nezperce National Forest.

Forest Defoliators

As the name implies, forest defoliators are insects that in their larval or caterpillar stages of development feed upon the foliage of forest trees. Although this group of insects will include a great number of different species, relatively few of them are capable of causing serious injury to forest trees. Under normal conditions these few species are held to a low, non-noticeable population level by natural forces of control. It is only when one or more of these factors fail that destructive epidemics occur. When released from restraint, some of these insects build up to tremendous populations in a few years. The duration of such outbreaks is uncertain and rather unpredictable. Unless reduced by artificial control they may last for three, five, or ten years, until such time as a normal balanced condition is restored.

Although the defoliation of trees may be quite severe, the loss of timber associated with an outbreak may be quite light, or even non-existent. On the other hand large volumes of timber may be destroyed. Quite obviously the killing of trees will depend upon the severity and duration of the epidemic. One year of complete defoliation will kill most coniferous trees.

Douglas Fir Tussock Moth (Hemerocampa pseudotsugata McD.)

No reports were received nor was any evidence of defoliation observed within the large 1947 tussock moth control area of north Idaho. It would seem that this chapter in the history of forest insect control is closed.

Several small spots of severe Douglas fir tussock moth defoliation were reported from the Colville National Forest in 1947. At that time an examination warranted a prediction that this situation would not become serious. This prediction proved to be correct.

A small area of tussock moth defoliation was reported from the Seeley Lake District of the Lolo National Forest in 1947. No further evidence of this defoliation has been recorded during the past season.

In 1947 Douglas fir tussock moth defoliation was reported as occurring in the Slate Creek drainage of the Nezperce National Forest. The report for 1948 lists this infestation as declining.

Spruce Budworm (Choristoneura (Archips) funiferana Clem.)

Although thousands and thousands of acres are involved, no accurate records are available as to the extent of the budworm infestations within the fir forests of Idaho and Montana. As yet resulting timber losses have not been heavy, although in areas where epidemic conditions have prevailed for several years severe tree mortality has occurred. In areas of mature merchantable Douglas fir, the Douglas fir beetle is now attacking trees weakened by budworm defoliation. It is this association of insects that results in severe timber losses.

In the Deerlodge National Forest a budworm infestation is reported as distributed throughout the Whitehall and Boulder Ranger Districts. These reports state little change from conditions as reported in 1947.

From the Big Prairie, Spotted Bear, and Condon Districts of the Flathead National Forest serious epidemic outbreaks of the budworm are again reported. In the Big Prairie and Spotted Bear areas the infestation has been present for several years. Timber losses in the Big Prairie District vary from 10 to 100 percent of the timber stands. This season's report now lists all fir forests of this district as infested. In the Spotted Bear District the situation is reported as having decreased considerably in its severity, although one new area of 2,000 acres was recorded. The report from the Condon District shows little change from conditions as first reported in 1947.

On the Gallatin National Forest the budworm infestation within the Bozeman district was reported to be in greater severity than ever before. The defoliation was heavy, and large numbers of adult moths were observed in flight. The extent of this severe defoliation was placed at 25,000 acres within the forest, and 5,000 acres of privately owned timber outside the National Forest Boundary. Fears are expressed for the future of this timber stand. There has been a budworm infestation within this general area for several years.

Severe budworm defoliation was reported again from the Canyon Ferry and Helena Ranger Districts of the Helena National Forests. In the Canyon Ferry district the situation is considered as being about the same as in 1947. The report from the Helena district

states that the infestation has now spread throughout the fir stands of the district. Defoliation is listed as being heavier along the east side of the Continental Divide. An examination of several areas show that in some areas severe loss of timber has already occurred.

Budworm defoliation is reported as occurring throughout the Douglas fir forests of the Musselshell district of the Lewis and Clark National Forest. The most severe situations occur within the Castle Mountain. Conditions are considered as being about the same as in 1947.

A rather severe budworm infestation was reported from the Powell district of the Lolo National Forest in 1946. The 1948 report states that there was little evidence of 1948 defoliation, and aside from a small amount of top-killing, the injured trees seem to have recovered.

A report from the Clearwater district of the Nezperce National Forest records no change in the status of the budworm infestation as previously listed. However, in the Salmon district of this forest a budworm and looper (believed to be Nepytia canosaria Wlk.-J.C.E.) infestation is reported as scattered over the entire district and increasing in its severity.

Officers of the Glacier National Park report light to heavy budworm defoliation in the Nyack Creek drainage. It is estimated that there are some 8,500 acres in the infested area with severe damage to spruce on some 6,000 acres. This situation had been previously reported and considered as an outbreak of the black headed budworm (Acleris variana Fern.).

In 1947 a spruce budworm infestation was recorded within the lodgepole pine and fir forests of the Beckler district of the Yellowstone National Park. As no further reports have been received of this situation it can be assumed that it has not increased materially in severity.

Pine Butterfly (Neophasis menopia F. and F.)

Temporary employees engaged on a bark beetle survey reported a defoliation in the tops of whitebark pine between Wallow Mountain and Collins Creek on trail 290, Clearwater National Forest. The insect responsible for this defoliation was not known, but as large numbers of insects resembling the pine butterfly were observed, it is possible that this insect could have been responsible.

Hemlock Looper (Lambdina fiscellaria Guen.)

In 1947 a large acreage (75,000) of looper infestation was reported from the Seeley Lake District of the Lolo National Forest. This season's report states that this outbreak is decreasing in

Spruce Gall Aphis (Adelges cooleyi Gill.)

A report of spruce gall aphis injury was received from the Deerlodge National Forest. This insect is common on spruce and seriously disfigures shade and ornamental trees, but causes little permanent injury to forest trees.